

Eureka Physical Chronology

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2020

Oct., 1889 *Ukiah's* keel was laid down.²

May, 1890 Construction: When originally built, Eureka was named *Ukiah* and was valued at \$164,000.³

The side-wheel ferry *Ukiah* was designed by Patrick H. Tiernan, and built by John Dickie.⁴ It was built for the San Francisco North Pacific Railway (later the Northwestern Pacific) at their yard.⁵ It was launched at 10:45 pm on May 18, 1890, being christened by Olive Maguire.⁶ About 800 attended the launching, which was lighted by bonfires and torches.⁷ Its car-carrying capacity has been stated as 10 to 18 cars depending on which source is cited.⁸ During this time the only enclosed spaces for passengers were cabins located between the paddle boxes and stairwells on either side of the main deck. These cabins contained a restaurant, bar, "toilet rooms" for Ladies and Gents, and heated lounges. Passengers were also allowed on its hurricane deck, the deck above the main deck (not the second deck above, as with the later *Eureka*). Its vertical beam, jet-condensing engine was built by the Fulton Ironworks in San Francisco. Sometime after its launching, two double-cylinder steering engines were installed in *Ukiah*. They were designed by master mechanic John Bonner, and replaced the manual steering system that *Ukiah* was built with. It is believed that these are the steering engines presently aboard *Eureka*.⁹

Dec. 27, 1890 *Ukiah* conducts its trial trip as a brand new vessel.¹⁰

Apr. 15, 1907 *Ukiah* sank at the Lombard Street ferry slip while railroad crew was offloading 14 freight cars (10 of them loaded). After seven cars had been unloaded from the port side, *Ukiah*

¹ I would like to express very special thanks to Park Historian Katherine Hjar for her editorial and mentoring support, and Park Librarian Gina Bardi for her research assistance.

² "Afloat and Ashore: The Steamer *Ukiah* Makes a Successful Trial Trip," *Daily Alta California*, December 28, 1890, 6.

³ Record of Equipment—Str *Ukiah*. Series 4, Box 4. MS 56, Northwestern Pacific Railroad Collection, California Department of Parks and Recreation Statewide Museum Collections Center. [Collection hereafter cited as MS 56, NWPR Collection.]

⁴ E. M. North, "Evolution of Shipping and Shipbuilding in California – IV: The Work of Captain Patrick Henry Tiernan" (Overland Monthly XXXIII – Second Series, January-June 1899), 143-153.

⁵ Tri-Coastal Marine, Inc. *Ferryboat Eureka: Historic Structure Report 1992 Draft* (San Francisco, CA: Tri-Coastal Marine, Inc., 1992), 9. [Hereafter cited as Tri-Coastal Marine.]

⁶ As stated in footnote 6, Olive Maguire was the cousin of Colonel Mervyn Donahue. According to the book of *Walking Beams and Paddle Wheels* James Mervyn Donahue was one of two brothers of Peter Donahue. Together these brothers confounded what later became known as Union Iron Works. Peter Donahue also later was the primary person to establish the California and North Pacific Railroad. This railroad built and operating the ferry boat *Ukiah*.

⁷ "Launch of the *Ukiah*: The New Ferry Boat to Ply Between This City and Tiburon," *San Francisco Examiner*, May 18, 1890, Sunday Morning, 3.

⁸ "A Fine Ferry Boat," *San Francisco Chronicle*, 28 December 1890, 18; "Trial Trip of the *Ukiah*," *The Morning Call* (San Francisco), December 28, 1890, 7.

⁹ Tri-Coastal Marine, 9.

¹⁰ "Afloat and Ashore," *Daily Alta California*, 28 December 1890, 6.

listed suddenly and dramatically to starboard as water rushed in through starboard-side portholes that had been left open. The crew was able to remove the remaining seven cars from the vessel before it sank. The entire hold, including the engine room, filled with water and *Ukiah* settled into the mud. *Ukiah* was raised on April 22 and towed by the Santa Fe Company tug, *Richmond*, to Southern Pacific's dry dock in Oakland. There appear to be no reports of the work necessary to remediate the damage caused by the infiltration of salt water, but it likely would have been particularly problematic to the engines.¹¹

Aug. 17, 1911 Hull Inspector's Report. The report notes that the following crew members were employed in *Ukiah*'s daily runs: 1 master/pilot, 2 mates, 3 deck hands, 1 chief engineer, 1 assistant engineer, 2 firemen, 1 watchman, 7 stewards (or other departments not associated with operating the vessel).

Significant equipment included

- 2 wooden watertight bulkheads
- 2 decks with permanent stairways
- 2 anchors with chain cable
- Steering Gear: Wire tiller ropes and iron rod and chain (double gear: one for each end of vessel)
- Wire bell pulls for engine room signals and communication tubes (voice tubes for pilot house/engine room communication)
- 4 life boats

Document includes the following re-inspection dates: November 24, 1911; February 3, 1912; April 18, 1912; and June 6, 1912.¹²

Oct. 12, 1911 New cylinder head was installed on main engine in place of fractured one.¹³

Nov. 3, 1911 *Ukiah* was granted a certificate of inspection by the steamboat inspection service office of the US local inspector, Port of San Francisco. This certificate, which expired on 25 July 1912, allowed the ferry to "ply on the ferry routes between San Francisco and Oakland."¹⁴

Aug. 15, 1912 General repairs and maintenance authorized.¹⁵

¹¹ An article in the *San Francisco Chronicle* reported that the cars were unloaded from the starboard side, but given that all reports say that water came in through starboard-side portholes and that the boat listed to starboard, this seems unlikely. Newspapers report variously that the SP dry dock was on Oakland Creek (*San Francisco Examiner*, April 17, 1907) and Alameda Creek (*San Francisco Examiner*, April 22, 1907). "Car Steamer *Ukiah* Sinks at Her Slip," *The San Francisco Call*, April 17, 1907, p. 11; "Big Ferry Steamer *Ukiah* Sinks in Night at Wharf," *San Francisco Examiner*, April 17, 1907, p. 3; "Ferry-Boat *Ukiah* Sinks in Her Slip," *San Francisco Chronicle*, April 17, 1907, p. 7; "Escapes by Swim in Shark Waters," *San Francisco Examiner*, April 22, 1907, p. 15.

¹² Department of Commerce and Labor, Steamboat Inspection Service, Hull Inspector's Report, Steamer *Ukiah*, 3 February, 1912, HDC 11, *Ukiah* (built 1890: ferry) inspection records, 1911-1912, Maritime Research Center, San Francisco Maritime National Historical Park. [Maritime Research Center hereafter cited as SFMNHHP.]

¹³ Letter from Engineer B. Tuckey to U.S. Inspectors, Hulls and Boilers, 12 October, 1911, HDC 648, Folder 4-Series 4, Harrison Dring Papers, *Eureka Historical* (1911-1985), SFMNHHP.

¹⁴ Department of Commerce and Labor, Certificate of Inspection, Steamboat Inspection Service, 3 November, 1911. Cited in Tri-Coastal Marine, 10.

¹⁵ Report of Progress on Important Work, October 1912. Series 1, Box 1. MS 56, NWPR Collection.

- Oct. 23, 1912 Construction of new boilers authorized.¹⁶
- Mar. 10, 1913 Construction began on new boilers for *Ukiah*.¹⁷
- Mar. 12, 1913 General repairs and maintenance began.¹⁸ This repair period lasted 19 days.¹⁹
- May, 1913 Documentation indicates that *Ukiah* was probably still equipped with a jet condenser and had not yet been equipped with a surface condenser and thus was losing most of its steam cycle water. This was found in an Increase Decrease Report which states, "Increase in charge for water due to increased mileage of Strs. 'Tiburon' and 'Ukiah,' which are not equipped with surface condensers."²⁰
- Dec., 1913 *Ukiah* was out of service for repairs for a total of 11 days. Specific dates and nature of work uncertain.²¹
- Mar./Apr., 1914 In March, *Ukiah* was out of service for 31 days.²² In April it was out of service for 20 days.²³ The Increase and Decrease Reports for March and April list increased expenditures on *Ukiah* and explain this expense as due to "heavy repairs."²⁴ Further, the report on important work from April, 1914 lists the project "Steamer *Ukiah* Boilers" as being 100% complete.²⁵ This combination of sources suggests that this prolonged heavy repair was for the installation of its new boilers. The boilers that are currently on *Eureka* have an attached label showing a built year of 1913. Since the construction of *Ukiah's* new boilers began in 1913, the boilers currently on *Eureka* are almost certainly the same ones that were installed in *Ukiah* in 1914.
- Apr., 1914 Renewal of keelsons, provision of supports under main deck, and reference to possible completion of new boiler installation. A report dated April 28, 1914 states,
- "In connection with installation of new boilers in Steamer 'Ukiah', it was found necessary to renew keelsons and other timber, and to provide special support for the tracks carrying cars over the boilers. Also to renew fire and circulating pumps, piping, etc."

It is difficult to infer from this document the exact timing of the boiler installation as it

¹⁶ Ibid.

¹⁷ Report of Progress on Important Work, March 1913. Series 1, Box 1. MS 56, NWPR Collection.

¹⁸ Ibid.

¹⁹ Steamer Service Report, March 1913. Series 1, Box 1. NWPR Collection.

²⁰ Increase and Decrease, May, 1913. Series 1, Box 1. MS 56, NWPR Collection.

²¹ Steamer Service Report, December 1913. Series 1, Box 1. MS 56, NWPR Collection.

²² Steamer Service Report, March 1914. Series 1, Box 1. MS 56, NWPR Collection.

²³ Steamer Service Report, April 1914. Series 1, Box 1. MS 56, NWPR Collection.

²⁴ Increase and Decrease, March 1914, Increase and Decrease, April 1914. Series 1, Box 1. MS 56, NWPR Collection..

²⁵ Report of Progress on Important Work, April 1914. Series 1, Box 1. MS 56, NWPR Collection.

makes no explicit statement. The phrase “it was found” suggests that this project was completed at the time this document was written. However, it may also suggest that the boilers were then still being installed and the additional work listed was simply being documented. [See the July, 1914 entry for additional information on the boiler installation timeline.] The cost listed for these specific repairs was \$10,185.²⁶

Jul., 1914 Four new boilers installed, costing \$16,546.19.²⁷

This probably indicates completion of work that was already underway or completed in April. [These repairs coincided with the completion of the boiler project listed in the Report of Important Work in April. With this in mind, it appears most likely that the boiler installation was completed in April and only later recorded in the company Record of Equipment in July.] More research will help to confirm or update this hypothesis. For a full evaluation of the current research on this topic, see the companion paper to this chronology entitled “Documentation of Ukiah New Boiler Installation in 1914.”

Jun., 1915 Project related to compartments. Physical details unknown. Project cost was \$762.58.²⁸

Feb. 11, 1916 Construction begun on new restaurant on board *Ukiah* and is listed as 25% complete.²⁹

An Authority for Expenditure for this restaurant, with the same date, requests money for structural additions/passenger accommodations to the hurricane deck. This document proposes “to equip steamer *Ukiah* with restaurant, ladies’ cabin, smoking room, and additional toilets on Hurricane deck. This is in order to provide suitable facilities for the handling of automobile traffic.” Total cost of these additions was \$3,239.³⁰

Progress on this project is documented in two additional “Progress of Important Work” documents. The project was started on February 11, 1916. A document dated March, 1916 lists it as 95% complete and a following one dated April, 1916 lists it as 100% complete.³¹

Mar. 17, 1916 Installation of new feedwater heaters authorized for *Ukiah*, *Cazadero*, and *Sausalito*.³²

Mar./Apr., *Ukiah* has work done on its decking. Project was started on March 25, 1915 and

²⁶ Authority for Expenditure – Request No. 703. Operating Expenses, Northwestern Pacific Railroad Company-Steamer *Ukiah*. Series 4, Box 7. MS 56, NWPR Collection.

²⁷ Record of Equipment—Str *Ukiah*. Series 4, Box 4. MS 56, NWPR Collection.

²⁸ Ibid.

²⁹ Report of Progress on Important Work, February 1916. Series 1, Box 1. MS 56, NWPR Collection.

³⁰ Authority for Expenditure – Request No. 864—Gen Mgr’s No. M-1684. Operating Expenses, Northwestern Pacific Railroad Company-Steamer *Ukiah*. Series 4, Box 7. MS 56, NWPR Collection.

³¹ Report of Progress on Important Work, March 1916, Report of Progress on Important Work, April 1916. Series 1, Box 1. MS 56, NWPR Collection. The draft HSR by Tri-Coastal Marine says, erroneously, that this deckhouse was added sometime between 1907 and 1915. See Tri-Coastal Marine, 10.

³² Report of Progress on Important Work, April 1916. Series 1, Box 1. MS 56, NWPR Collection.

1916	completed by April. ³³
Jul., 1916	Addition of "Restaurant etc." recorded at a cost of \$3,380.62. ³⁴ [The "etc." suggests all equipment and fittings associated with this food-serving space.] A Report of Progress of Important Work document dated April 1916 suggests that the work was completed in April 1916. These reports include dates for projects being authorized, dates for projects being started, as well as the percentage of completion as of the date for the document itself. In the case of this April 1916 dated document, the percentage of completion was listed as 100%. See chronology entry for February 11, 1916.
Aug. 30, 1916	Addition of a new stairway was begun. This may be the same stairway listed as completed by February, 1917. ³⁵
Jan., 1917	Carbide lamps were purchased for use on board. Further details unknown. Cost was \$9.54. ³⁶
Feb., 1917	A stairway was added to the vessel. Location unknown. Cost was \$410.70. A comparison of entries in the Record of Equipment logbook with other NWPR documents related to this project suggested that the Record of Equipment logbook entry was completed well after the actual date of completion. ³⁷
Jun., 1917	Two fireroom ventilators were added to the vessel. Cost was \$74.66. ³⁸
Apr., 1918	Feedwater heaters added to the engine room. Cost was \$1,476.10. ³⁹
Jul., 1919	Signs were added. Further details unknown. \$43.97. ⁴⁰
Apr., 1920	Engine order telegraphs added to the pilot houses. The cost was \$346.46. ⁴¹
Jun., 1920	Oil meter for measuring fuel consumption was added to the engine room. It is unknown if this was a new piece of equipment or a replacement for an old one. Cost was \$72.37. ⁴²

³³ Report of Progress on Important Work, June 1916. Series 1, Box 1. MS 56, NWPR Collection.

³⁴ Record of Equipment—Str *Ukiah*. Series 4, Box 4. MS 56, NWPR Collection.

³⁵ Report of Progress on Important Work, September 1916. Series 1, Box 1. MS 56, NWPR Collection.

³⁶ Record of Equipment—Str *Ukiah*. Series 4, Box 4. MS 56, NWPR Collection.

³⁷ Ibid.

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

- Jul., 1920 Handrails were added to the vessel's gangplanks. Cost was \$22.24.⁴³
- Jan. 29, 1921 Lights were added. It is unknown whether these were new lights or replacements for existing ones. Cost was \$156.12.⁴⁴
- Apr. 17, 1921 A blueprint of *Ukiah* meant to show its belowdeck bulkheads also shows its general machinery layout. This blueprint shows two differences from *Eureka's* present arrangement. One difference is that it shows two fuel tanks (one each directly aft of boilers 3 and 4) where as *Eureka* currently has only one. The other difference is that it shows three water tanks in the compartment immediately aft of the engine room whereas *Eureka* currently has only one in this space.⁴⁵
- Ca. 1922-26 According to the 1992 draft HSR by Tri-Coastal Marine, photographic evidence shows that sometime during the years 1922-26, the jackstays that were originally mounted on either side of the main deck (on both ends of the vessel) were removed and replaced with a single jackstay mounted on centerline at each end of the passenger deck.⁴⁶
- Jan. 27, 1922 Plans dated January 27, 1922 show the layout of *Eureka's* main and saloon decks.⁴⁷ [See Entry for April 1, 1922 for information and comments about rebuilding of *Ukiah* into *Eureka*.]
- Restaurant plans include two rectangular U-shaped nested counters, separated by an aisleway from which staff could serve customers. The outer counter has 32 seats along the outside and the inner counter has 20 seats along the inside. In the middle of the inner counter is a serving table. There is also an area along the starboard side of the smokestack casing in which there are three circular tables with four seats each. The drawing shows a shallow counter with two coffee urns along the exterior wall of the galley, facing the U-shaped counters and adjacent to the galley door.
- The galley plan shows an ice box, a steam table, and a cooking range down the longitudinal area. In the athwart ship area there is a sink flanked on both sides by a counter labeled "drain" (presumably a canted countertop draining to the sink). A historic photograph from the Belvedere-Tiburon Landmarks Society, believed by the Landmarks Society to have been taken in about 1922, confirms all these details from the drawings. [See Figs. 1, 2, 3]
- The plans for the saloon deck also shows two large women's bathrooms, one each atop the paddlewheel boxes. These facilities were accessed through rooms labeled "Women's Rest Room" with what appears to be bench seating along both the outboard

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Blueprint, *Stmr Ukiah*, Arrangement of Bulkheads, 17 April, 1921, NW.P.R.R.Co., Office of G.S.M.P.&M.E., Tiburon, Calif., HDC 555, folder 34, *Ukiah* Plans 5 BP 3 Vellum, SFMNH.

⁴⁶ Tri-Coastal Marine, 13. Tri-Coastal cites (Levingston, 1984), but does not provide any further information in their reference lists. This note refers to Steven E. Levingston, *Historic Ships of San Francisco: A Collective History and Guide to the Restored Historic Vessels of the National Maritime Museum*.

⁴⁷ *Stmr Eureka* plans, General Arrangement, saloon deck and main deck, stamped as updated January 27, 1922, HDC 555, drw B4.24-2, SFMNH.

and aft walls. Today, in addition to a door that is shown in the plans, there is an additional door in the aft wall of the vestibule, which is not shown in these plans. On the forward ends of these paddlewheel box enclosures are (to port) a small men's bathroom and (to starboard) a newsstand (currently a vacant location.) Forward of this news stand, on the starboard side, the plan shows an enclosed smoking room with three sets of swinging doors. This room extends all the way to the forward wall of the deckhouse. In the area at the aft end of the engine casing, the plan shows passenger seats where, as currently configured, the newsstand is located. [Fig. 4]

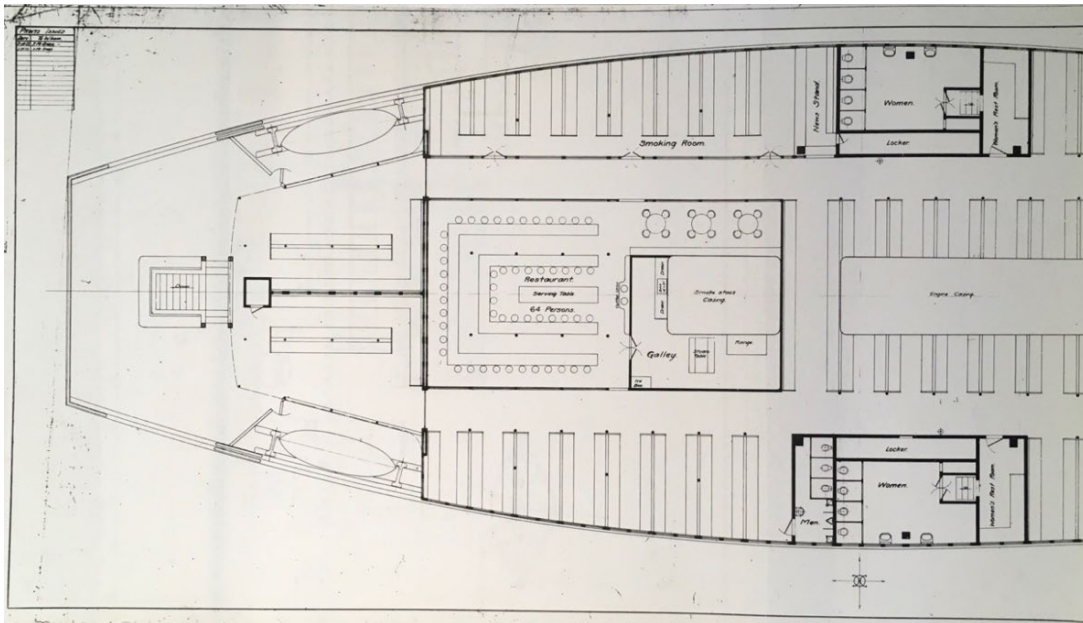


Figure 1. Drawing of saloon deck showing restaurant area. SFMNH, HDC 555, drw B4.24-2

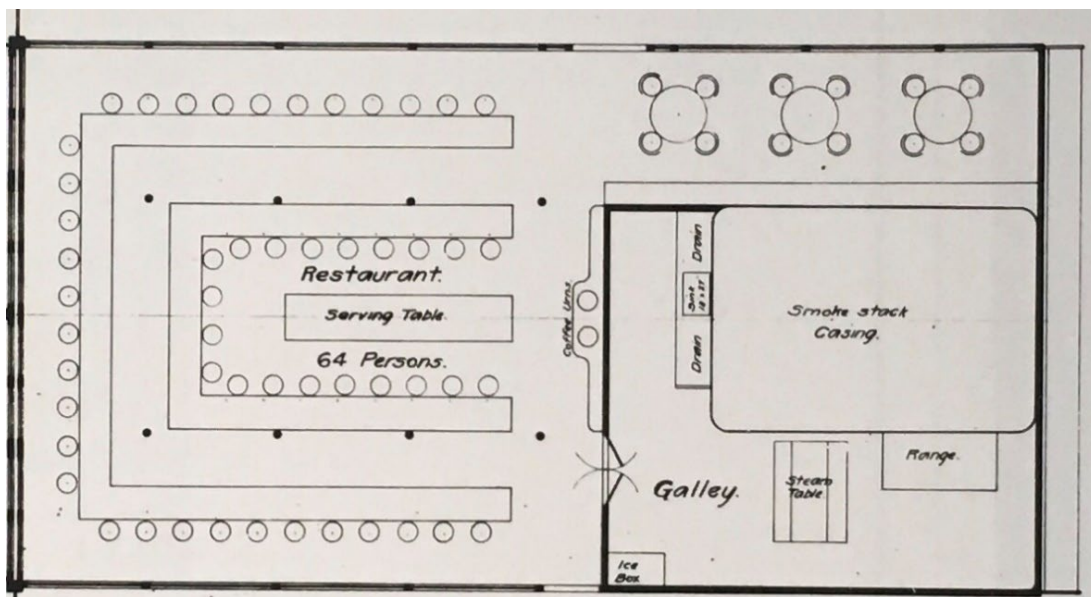


Figure 2. Detail, drawing of saloon deck showing closeup of restaurant area. SFMNH, HDC 555, drw B4.24-2



Figure 3. Historic photograph of Eureka's restaurant. Photo Credit: Belvedere-Tiburon Landmarks Society, California.

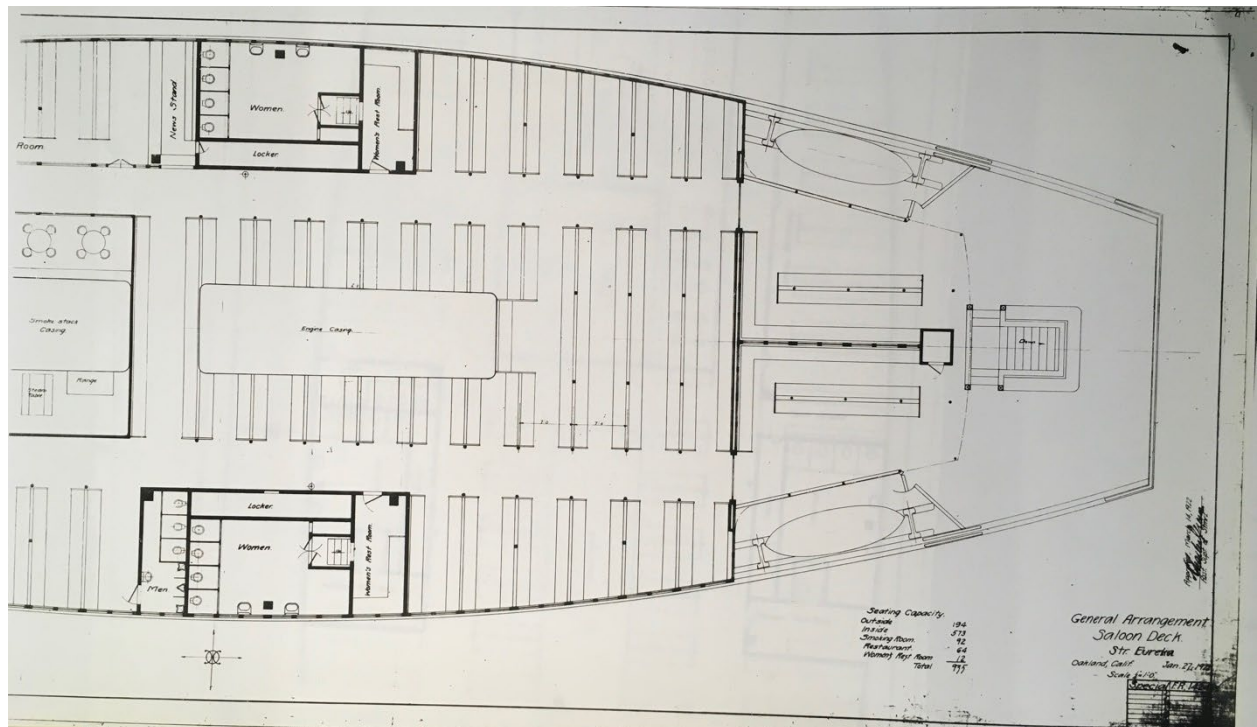


Figure 4. Drawing of saloon deck showing women's bathrooms and seating area. Credit SFMNH: HDC 555, drw B4.24-2

Mar. 3, 1922 Plans of main deck (commonly known at SAFR as the car deck) show general arrangement. The date on the plan is obscured, but the prints-issued date is March 3, the same as the "Prints Issued" date on the Saloon Deck plan. [The resolution of this page of plans is poor where dates are shown.] This suggests that the plans of this deck correspond to the plans of the Saloon Deck mentioned in the entry or January 27, 1922 and may therefore have belonged to the same set of plans.⁴⁸

These plans shows movable benches along the outboard walls. [Additional benches, part of the current arrangement of the main deck, were added in 1924. See entry for Sept. 2, 1924. On the forward end of the paddle wheels boxes, there are two bathrooms shown. They are not labeled, but based on the urinals that are shown in the plans, these are likely men's facilities.⁴⁹ (Fig. 5 & 6)

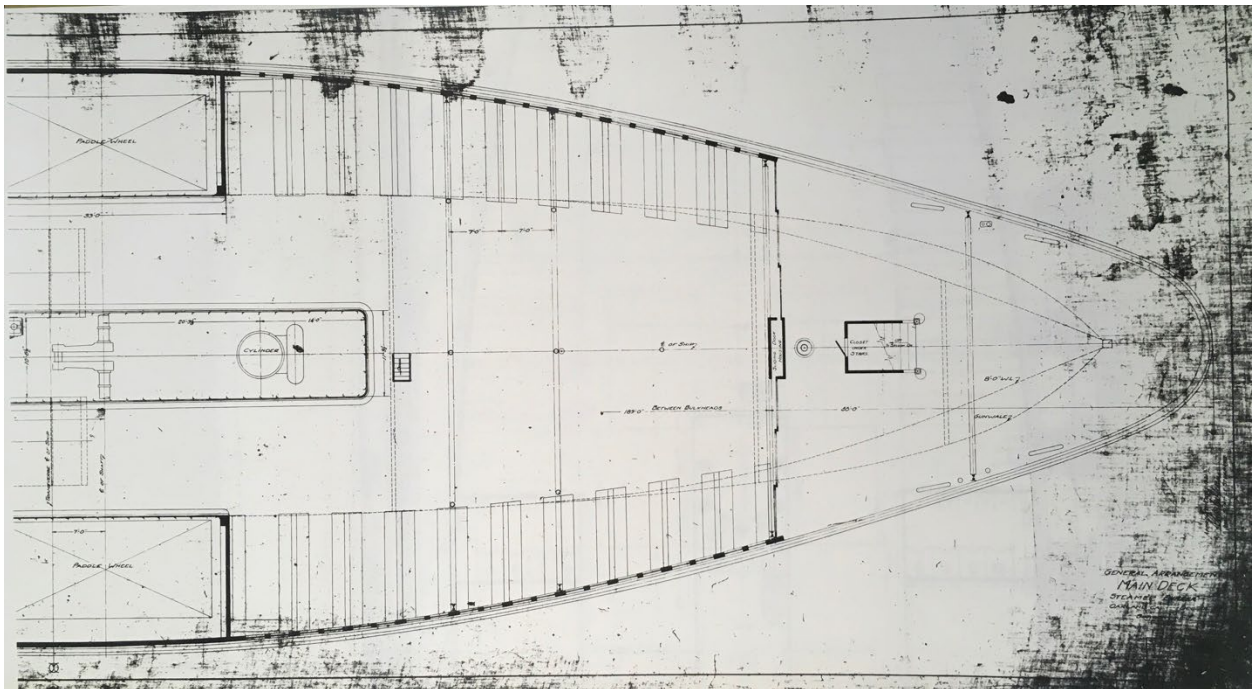


Fig. 5. Drawing of Car/Main deck showing general arrangement of forward end. Credit SFMNH: HDC 555, drw B4.24-2

⁴⁸ Stmr *Eureka* plans, General Arrangement, saloon deck and main deck, stamped as updated March 3, 1922, HDC 555, drw B4.24-2, SFMNH.

⁴⁹ The primary women's facilities being on the upper deck and primary men's facilities being on the lower deck is noteworthy. It will be worth researching further to learn if this relates to gender segregation by deck to some degree. It is noted that, at a later date, a women's smoking room was also added. [See entry for August 1, 1928.] This implies that, though it was eventually acceptable for women to smoke, it was still not acceptable for them to do so in the same room with men. This generally reflects a similar practice on ocean liners.

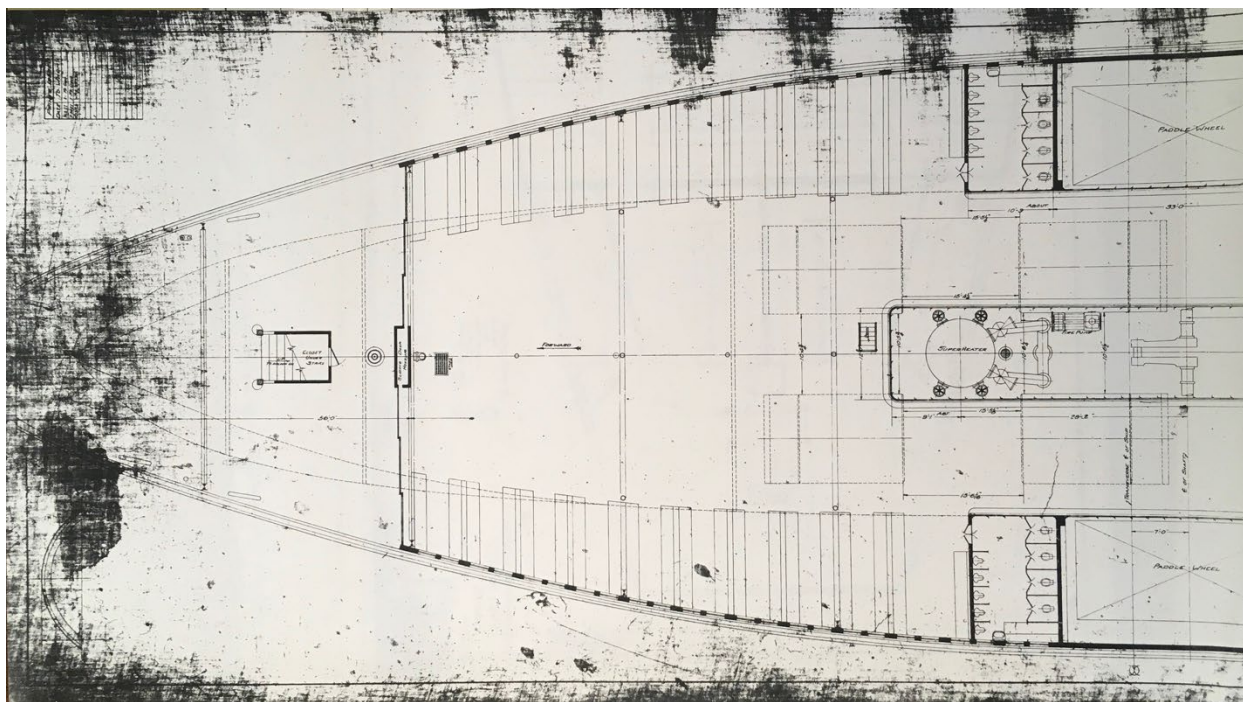


Fig. 6. Drawing of Car/Main deck showing general arrangement of aft end. SFMNH, HDC 555, drw B4.24-2

Mar. 11, 1922 Indicator Diagram drawing: This diagram records *Eureka's* trial trip and states the following particulars:

- Cylinder Diameter: 65 inches
- Stroke: 12 feet
- Gauge Pressure: 55 psi (pounds per square inch)
- Vacuum: 27.5 inches
- RPM: 20.5
- Spring: 24
- Total IHP (Indicated Horsepower): 1844.6⁵⁰

The gauge pressure of 55 psi is the pressure of the steam as it entered the engine cylinder. A Certificate of Inspection issued by the Coast Guard on June 29, 1956 mentions a boiler pressure of 60 psi.⁵¹ This apparent discrepancy is due to the pressure drop that occurs when steam leaves the piping and enters the boiler.

Comparison between sources suggests that *Eureka's* engine was fully capable of more than its registered limits [OR, the limits noted in its official registration]. The Record of American and Foreign Shipping for 1923 lists the vessel's IHP as 1500.⁵² The indicator diagram, however, was produced directly from the engine itself, so it can be stated with confidence that *Eureka's* engine did produce 1844.6 IHP, at least when in near-new condition.

⁵⁰ Blueprint, Indicator Cards Str *Eureka*, Oakland, Cal., 13 March, 1922, HDC 555, drw B4.24-1, SFMNH. [The actual indicator diagrams on this blueprint states that they were made on the trial trip on March 11, 1922.]

⁵¹ Certificate of Inspection, Vessel: *Eureka*, Class: Ferry, June 29-1956, HDC 648, Folder 4, Series 4, SFMNH.

⁵² American Bureau of Shipping, *Record of American and Foreign Shipping*. New York, NY: American Bureau of Shipping (1923), 374.

Apr. 1, 1922 Due to the hard usage *Ukiah* received under the United States Railway Administration during World War I, *Ukiah* was one of two Northwestern Pacific ferries chosen for rebuilding.⁵³ The ship was rebuilt and renamed *Eureka*. April 1 is presumably the date the project was completed, but this could also simply be the date it was entered in the Record of Equipment.

An Authority Request for Expenditure lists items specific to this rebuilding:

“Complete reconstruction of steamer *Ukiah*, freight car and automobile transfer boat, into automobile and passenger carrying ferry steamer; name changed to *Eureka*. Tracks and entire housing removed; complete reconstruction and lengthening of hull (90% new timber used); wooden engine keelsons and gallows frame replaced with steel; engines, boilers and auxiliaries repaired and re-installed; hull recovered and caulked; superstructure and cabins entirely new construction; large restaurant facilities provided on saloon deck.

“Changes and additions necessary to provide facilities for the increasing automobile and passenger business. Renewal of hull, frames and other timbers requested by United States Local Steamboat Inspectors.”⁵⁴

According to the Record of Equipment, after rebuilding, the vessel accommodated 2,440 passengers and 100 automobiles. *Eureka* was valued at \$500,000.⁵⁵ The total actual cost listed on Executive Authority No. 1406 is \$508,091.13, so there is a discrepancy of \$8,091.13 between this document and the Record of Equipment evaluation of \$500,000.

[While the book *Of Walking Beams and Paddle Wheels* written by George H. Harlan and Clement Fisher Jr. states *Ukiah*’s rebuild into *Eureka* took place between 1920-1922,⁵⁶ records from Northwestern Pacific Railroad suggest *Ukiah* remained in service as late as April 1921. The indicator diagram dated March 11, 1922, however, suggests that *Eureka* was finished and running tests by March 11, 1922, less than a year after the rebuild likely began. Further research is needed to clarify the rebuild start date.]

The following statistics illustrate the extent of the transformation:

- *Ukiah*
Official Number: 25279
Rig: Side Wheel Steamer
Gross Tonnage: 2,564.42
Net Tonnage: 2,018.77
Length: 271’ -0”
Depth: 15’ -0”
Built: 1890
Where: Tiburon, CA
Homeport: San Francisco, CA⁵⁷

⁵³ See Tri-Coastal Marine, “Chronology of Physical History,” p. 9, appended to draft HSR, 1991.

⁵⁴ Executive Authority - No. 1406 - A.F.E. No. M-3660. Authority is requested for the following expenditure for account of Steamer *Eureka* (*Ukiah*): Reconstruction. Series 4, Box 7. MS 56,NWPR Collection.

⁵⁵ Record of Equipment – Steamer *Eureka*. Series 4, Box 4. MS 56,NWPR Collection.

⁵⁶ George H. Harlan and Clement Fisher Jr., *Of Walking Beams and Paddle Wheels* (Salinas, CA: El Camino Press, 1951), 42.

⁵⁷ *List of Merchant Vessels of the United States*, (Washington D.C.: U.S. Government Printing Office, 1891); Cited in Tri-Coastal Marine, 11.

- *Eureka*
 Official Number: 25279
 Rig: Side-Wheel Steamer
 Gross Tonnage: 2,420.00
 Net Tonnage: 1,500.00
 Length: 299' -6"
 Depth: 15' -7"
 Rebuilt: 1922
 Where: Tiburon, CA*
 Homeport: San Francisco, CA⁵⁸

*Although *Merchant Vessels of the United States* continued to list Tiburon as its building site, *Eureka's* rebuild took place at the Southern Pacific shipyard in Oakland.⁵⁹

- Dec., 1923 *Eureka's* walking beam link pin broke and was repaired.⁶⁰
- Mar. 30, 1923 1,200-gallon water supply-tank added to the vessel. This may be the potable water tank or a new feed tank. The cost was \$629.98.⁶¹
- Aug. 23, 1923 Pantograph gates added on main deck. Cost was \$638.12.⁶² These gates were approved on April 10, 1923.⁶³
- Oct. 16, 1923 Approval given for the addition of a water tank. It is unclear if this was for feed water or potable water. The cost was \$282.98.⁶⁴
- May 9/10, 1924 Authorization given for inspection and repairs. This authorization was requested on the 9th and given on the 10th. The authorization document states that 869 sheets of yellow metal (copper) were replaced and that one wooden beam on the main deck was replaced with a metal section where it passed through the engine's eccentric rods. This document further states that the work was ordered by U.S. Inspectors. This metal beam section is still visible today. Along with some minor repairs and painting, the total cost was \$6,000.⁶⁵

⁵⁸ *List of Merchant Vessels of the United States*, (Washington D.C.: U.S. Government Printing Office, 1922); Cited in Tri-Coastal Marine, 11-12.

⁵⁹ Tri-Coastal Marine, 12.

⁶⁰ Tri-Coastal Marine, 13.

⁶¹ Record of Equipment – Steamer *Eureka*. Series 4, Box 4. MS 56,NWPR Collection.

⁶² Ibid.

⁶³ Executive Authority - No.1474 - A.F.E. No. M-3829. Authority is requested for the following expenditure for account of Steamer *Eureka*: Annual inspection and repairs. Series 4, Box 8. MS 56,NWPR Collection.

⁶⁴ Executive Authority - No.1506 - A.F.E. No. M-3801. Authority is requested for the following expenditure for account of Steamer *Eureka*: Annual inspection and repairs. Series 4, Box 8. MS 56,NWPR Collection.

⁶⁵ Executive Authority - No.1596 - A.F.E. No. M-4162. Authority is requested for the following expenditure for account of Steamer *Eureka*: Annual inspection and repairs. Series 4, Box 8. MS 56,NWPR Collection.

- Sep. 2, 1924 Additional seats added on main deck of *Eureka*, both forward and aft, providing seating for approximately 227 additional passengers. The authorization document for this work notes that additional seating was necessary for "heavy passenger trips." *Eureka's* original seating capacity was lower because of its intended use for automobile transport, and was insufficient for actual use by larger-than-expected numbers of passengers at peak commute times and on weekends. New seating was, like existing seating, removable for use "in exclusive automobile service." The estimated cost was \$585..⁶⁶
- Feb. 4, 1925 Approval given for the following repairs in preparation for upcoming season: Docking, cleaning and painting hull, renewing yellow metal (copper) where necessary, and annual inspection. Estimated cost \$5,536..⁶⁷
- Dec. 13, 1925 Paddlewheel drive shaft fractured while *Eureka* was only 300 yards into her voyage from the Sausalito dock on its way back to San Francisco. *Sausalito* towed it back to the dock..⁶⁸
- Jan. 18, 1926 Steel outboard bearing was added, probably the outboard support for one of the paddle wheels. The cost was \$995.07..⁶⁹
- Mar. 3, 1926 Approval was given for the following repairs to *Eureka*: docking, cleaning hull, and renewal of approximately 1,000 sheets of yellow metal (copper); repairs to fender, boilers, engines, lavatory, restaurant and galley; renewal of main deck sheathing and painting where necessary. Estimated cost was \$11,500..⁷⁰
- Mar. 12, 1926 Repairs made to paddlewheel drive shaft that fractured on December 13, 1925..⁷¹ This repair also required repair to a steel outboard bearing beam and bearing on starboard side, which had broken on January 18. This replaced a wooden beam damaged in the accident. Cost is not clearly indicated. Cost: \$2,185.07..⁷²
- Jun. 10, 1926 Damage to engine caused by a fairly serious engine room malfunction..⁷³

⁶⁶ Executive Authority - No.1627 - A.F.E. No. M-4255. Authority is requested for the following expenditure for account of Steamer - *Eureka*: Additional Additional seats on main deck. Series 4, Box 9. MS 56,NWPR Collection.

⁶⁷ Executive Authority - No.1662 - A.F.E. No. M-4372. Authority is requested for the following expenditure for account of Steamer *Eureka*: Repairs. Series 4, Box 9. MS 56,NWPR Collection.

⁶⁸ Executive Authority - No.1781 - A.F.E. No. M-4643. Authority is requested for the following expenditure for account of Steamer *Eureka*: Annual inspection and repairs. Series 4, Box 9. MS 56,NWPR Collection; No Author, "Crowded Ferry Adrift on Bay," *Petaluma Daily Courier*, Vol. 67, No. 69, December 15, 1925, 1.

⁶⁹ Record of Equipment - Steamer *Eureka*. Series 4, Box 4. MS 56,NWPR Collection.

⁷⁰ Executive Authority - No.1778 - A.F.E. No. M-4636. Authority is requested for the following expenditure for account of Steamers *Eureka* and *Tamalpais*: Annual inspection and repairs. Series 4, Box 9. MS 56,NWPR Collection.

⁷¹ Executive Authority - No.1781 - A.F.E. No. M-4643. Authority is requested for the following expenditure for account of Steamer *Eureka*: Annual inspection and repairs. Series 4, Box 9. MS 56,NWPR Collection.

⁷² Executive Authority - No.1781 - A.F.E. No. M-4643. Authority is requested for the following expenditure for account of Steamer *Eureka*: Application of steel outboard bearing beam, in place of wood. Series 4, Box 9. MS 56,NWPR Collection.

⁷³ Executive Authority No.1832 - A.F.E. No. M-4770. Authority is requested for the following expenditure for account of Steamer *Eureka*: Repairs and alterations. Series 4, Box 9. MS 56,NWPR Collection.

The strap securing the engine's connecting rod to the paddlewheel crank broke. This led the piston within the cylinder to break and then the cylinder top blew off. This series of damages was loud and shook the vessel seriously, especially in a vertical plane. A newspaper reported that passengers were very afraid that the vessel might sink. Chief Engineer Rollcheck quickly closed the throttle valve, saving the engine from further damage and *Eureka* was safely towed to dock..⁷⁴

- Jun., 1926 *Eureka's* walking beam was damaged, necessitating its replacement. In the same incident, its connecting rod was bent. It is not known whether the connecting rod was repaired or replaced..⁷⁵ This damage appears to have been additional to what is described in the June 10, 1926 entry.]
- Jul. 31, 1926 *Eureka's* engine main rod, cross head, and other parts were replaced new ones of increased size and strength. These parts connect the piston to the walking beam. Their replacement with larger, stronger components suggests an effort was made to prevent a recurrence of the engine malfunction mentioned in the June 10, 1926 entry above..⁷⁶
- Aug. 17, 1926 As a result of the June 10 accident, approval was given to renew and strengthen certain parts of the driving machinery. The estimated costs were \$3,677..⁷⁷
- Jan. 14, 1927 Approval given for annual docking, inspection and repairs. Estimated cost was \$8,000..⁷⁸
- Feb. 6, 1928 U. S. Inspectors granted approval to tie the *Eureka* up for annual inspection, to take place no later than Feb. 10, 1928. Further approval was given to drydock the vessel at that time to clean the hull, renew yellow metal (copper), and make general repairs for the next operating season. Estimated cost was \$6,888..⁷⁹
- Aug. 1, 1928 Women's smoking room added to the vessel. The cost was \$264.25..⁸⁰ Based on existing window vents on the passenger deck, this smoking room appears to have been located on the aft side of the room that is currently labeled as a women's restroom (as it is also labeled on the 1922 plans) on the starboard side of the passenger deck. These vents are of the same design as those in the original (men's) smoking room. The seating arrangements in both areas are also identical and the location of a door leading directly from the women's restroom into the adjacent seating area mirrors the door that

⁷⁴ "Serious Mishap on the *Eureka*," *Petaluma Argus*, Daily Evening Edition, June 11, 1926, 11.

⁷⁵ Tri-Coastal Marine, 13.

⁷⁶ Record of Equipment – Steamer *Eureka*. Series 4, Box 4. MS 56,NWPR Collection.

⁷⁷ Executive Authority - No.1832 - A.F.E. No. M-4770. Authority is requested for the following expenditure for account of Steamer *Eureka*: Repairs and Alterations. Series 4, Box 9. MS 56,NWPR Collection.

⁷⁸ Executive Authority - No.1860 - A.F.E. No. M-4863. Authority is requested for the following expenditure for account of Steamer *Eureka*: Repairs. Series 4, Box 9. MS 56,NWPR Collection.

⁷⁹ Executive Authority - No.1996 - A.F.E. No. M-5200. Authority is requested for the following expenditure for account of Steamer *Eureka*: Annual inspection and repairs. Series 4, Box 9. MS 56,NWPR Collection.

⁸⁰ Record of Equipment – Steamer *Eureka*. Series 4, Box 4. MS 56,NWPR Collection.

connects the men's bathroom and smoking room. Additionally, photographic evidence shows the number and location of vents in the presumptive women's smoking room change over time. One undated historic photo shows four vents side-by-side in this location, whereas the current configuration has just three such vents, widely spaced from each other.

Jan. 23/24, A request for expenditure recommends that *Eureka* be taken out of service to repair a newly discovered crack on [in??] the walking beam strap and to undertake "general operating repairs required, including tube renewal in all boilers."

634 boiler tubes were renewed and repairs were made to the paddlewheels along with other miscellaneous repairs. The total estimated cost of this work was \$13,000.⁸¹

- Nov., 1929 Improved lighting facilities installed. The cost was \$186.10.⁸²
- 1932 Collision Damage. At 5:10 PM on a foggy 19 January 1932, *Eureka* collided with the steam schooner *Katherine* during a regular run from San Francisco to Sausalito. The bow of the ferry (presumably the Sausalito end) was damaged.⁸³
- 1933 *Eureka* suffered a crack in its walking beam strap.⁸⁴
- 1934 *Eureka* suffered another break in the starboard paddle shaft. This damage was repaired. It is not clear from the records whether the break was in the same area as in 1925.⁸⁵
- Sep. 20, 1936 *Eureka* was rammed on its starboard side by the ferry *Golden West* while off Alcatraz Island. 40 feet of *Eureka's* starboard side was damaged.⁸⁶
- Ca. 1936-1957 Oral history data indicates that sometime after 1936 the large glass windows, which separated the smoking room from the starboard side promenade on the passenger deck, were removed. The swinging doors into the [DESCRIBE (pick one): forward/aft, men's, original?] smoking room, which appear in the construction drawings from 1922, were also removed.⁸⁷
- Aug. 1937 Blueprints show a LUX System installed on *Eureka*. This was a carbon dioxide fire-fighting system for use aboard ships and was invented and patented by Walter Kidde

⁸¹ Executive Authority - No.2112 - A.F.E. No. M-5457. Authority is requested for the following expenditure for account of Steamer *Eureka*: Operating repairs. Series 4, Box 8. MS 56,NWPR Collection.

⁸² Record of Equipment – Steamer *Eureka*. Series 4, Box 4. MS 56,NWPR Collection.

⁸³ Tri-Coastal Marine, 13.

⁸⁴ Ibid.

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ William Knorp , Oral History Interview with George Barry, 7 December, 1989. Cited in Tri-Coastal Marine, 13-14.

and Company, Inc. The blueprints show two banks of CO₂ cylinders along the aft bulkhead and pipes for distribution of CO₂ running through the length and at several points athwart the engine/boiler room along the bilges that could distribute the CO₂ throughout the engine room to put out any possible fire..⁸⁸

Most of this system was removed at some point after *Eureka* was acquired by the San Francisco Maritime Museum in 1957..⁸⁹

- Ca. 1941 Snack bar installed just aft of the magazine stand, behind the engine room casing bulkhead. Sometime after Southern Pacific assumed operation of *Eureka*, the restaurant at the forward end of the passenger deck was removed..⁹⁰
- Ca. 1941 During World War II, all of the San Francisco Bay ferryboats including *Eureka*, were given a coat of gray paint. *Eureka* was also fitted with stanchions and cables to deflect mines..⁹¹
- Feb. 28, 1941 Northwestern Pacific Railroad discontinued official service to/from Sausalito..⁹²
- Mar. 2, 1941 *Eureka* made a free commemorative “farewell” cruise departing San Francisco and steaming past Belvedere, Tiburon, Sausalito, around Goat Island (connected today to the artificially made and often collectively known as Treasure Island), and returning to San Francisco. Immediately after this, the vessel steamed back to Sausalito for official transfer from Northwestern Pacific Railroad to Southern Pacific Railroad. Shortly thereafter, *Eureka* given the official Southern Pacific paint scheme and a company herald was placed on the smokestack..⁹³
- Ca. 1948-1957 *Eureka* was fitted with radar..⁹⁴
- 1953-54 On 16 October 1953, *Eureka* was dry docked for extensive repairs at Moore Dry Dock Company in Oakland, California. The work was completed on May 19, 1954. The total cost was in excess of \$600,000. Much of the fabric and the vessel today dates from this period. Repairs were as follows:

⁸⁸ Blueprint, LUX System, Diagrammatic Piping Layout, S.S. *Eureka*, HDC 555, drw, B4.24-3, *Eureka* Plans Details, 2 BP 1937-1938, SFMNH. P.

⁸⁹ “Museum Anchors Famous Bay Ferry,” *San Francisco Chronicle*, September 10, 1957, p. 36.

⁹⁰ According to Tri-Coastal Marine, 14, the source for this was cited as follows, John Proctor, *Wharf and Wave Scrap Book* (Vol. 5, No Publisher, No Date) [Hereafter cited as *Wharf and Wave*.], however, upon my attempt to locate and verify this source, I was unable to do so.; How to treat this Tri-Coastal Marine item is uncertain. The 1922 plans show the original location of the restaurant which is where the current restored one is now located. This space was truncated at some point by Southern Pacific, however, and it is unclear if the remaining truncated space was the location actually used as the snack bar mentioned above or if it was used for something else. In general, this statement does not well correlate with the remaining physical structure of the ship. Until further research may provide additional knowledge, this particular Tri-Coastal Marine note should be treated with caution until it can be clarified.

⁹¹ Ibid, Upon my attempt to locate and verify this source, I was unable to do so.

⁹² “Museum Anchors Famous Bay Ferry,” *San Francisco Chronicle*, September 10, 1957, 36.

⁹³ “A Ferry Bids Farewell to Its Old Friends,” *San Francisco Chronicle*, March 2, 1941, 70.

⁹⁴ Photograph with label, “*Eureka* pulling into Ferry Building slip, 1957,” P91-015, Harry Dring Photographs, 1870-1983, Box15, Series III, Albums (Not Classified), 1-7, Folder Name: Album – *Eureka* #1, SFMNH. P.

Engines and Boilers:

- Repairs to boilers and boiler valves
- Repairs to main engine crank, bearings and crank pin
- Repairs to crosshead
- Repairs to lower steam chest
- Repairs to condenser and replacement of 1,700 condenser tubes
- Repairs to main fire pump and circulator
- Repairs to two steering engines
- Repairs to electric generator
- Repairs to paddle wheels

Hull:

- Removed and replaced all copper sheathing between waterline and the turn of the bilge, about 125' on each side of the hull
- Removed hull planking in above areas and replaced
- Applied heavy coats of wood preservative to new wood
- Removed entire inside ceiling between boiler room and engine room bulkhead to staggered butts; reinstalled new as per original. Painted all areas disturbed.
- Furnished and drove in new galvanized grommited spikes
- On Oakland end, refastened every plank, port and starboard, from waterline to keel
- Removed and replaced main deck pointer on Oakland end
- Removed and replaced deteriorated futtock timbers
- Installed 26 natural knees and 30 timber knees
- Replaced four 70' keelsons in engine room and boiler room and four boiler bearers 62' long

Other Repairs:

- Repairs to rudder
- Repairs to main switchboard
- Replaced some main deck sheathing with 1" x 4" clear cedar
- Renewed steering sheaves and troughs
- Removed entire entry room floor (tongue and groove) and replaced with new flooring
- Installed new angle bars, handrails and replaced approximately 10% of boiler room floor plating with new diamond plate
- Replaced wood bulkheads at fore and aft ends of the engine room with steel watertight bulkheads

Many other small repairs and replacements are listed in a 34- page record of work performed..⁹⁵

⁹⁵ Ibid., 16.

- May 19, 1954 Significant repairs begun on Oct 16, 1953 were finally completed.⁹⁶ These repairs were almost entirely in the engine room area and included many different systems. (They may be related to the work detailed in the entry above for 1953-54.) The list was produced by Moore Dry Dock Co. and the document appears to have had a second page, now missing.
- Nov. 9, 1954 Oil fuel use report for August, September, and October. On average for these three months, *Eureka* used between 154 and 156.5 gallons of fuel per trip at an average of 44 to 44.71 gallons of fuel per mile.⁹⁷
- Feb., 1955 Request for authority to install a smoke density indicator on *Eureka* in order to reduce fuel costs to reduce smog-producing emissions. The request also noted that smog ordinances had already been emplaced in the Los Angeles area. This request for expenditure document was submitted on February 7, 1955, approved by mailgram on February 14, and stamped as approved on February 25, 1955.⁹⁸ The mailgram dated February 14, 1955 lists all of the equipment to be purchased and where to install it, and estimates a cost of \$1,364.⁹⁹
- Feb. 28, 1955 Memorandum indicating the specifications of *Eureka's* two generators:
- Generator #1 – Main Deck: 20 kw DC, 125 volt, 160 amp.
 - Generator #2 – Engine Room: 18.4 kw DC, 125 volt, 147 amp.¹⁰⁰
- Apr. 25, 1955 *Eureka* reported to have suffered damage due to rough water on the bay. Source does not state the exact nature of this damage, but indicates that both pilot houses and the superstructure would need repairs and that sheathing would need to be removed to fully assess the extent of the damage.¹⁰¹
- Nov./Dec., 1955 Letters dated November 29 and December 5, 1955 document excessive smoke produced by *Eureka* on trips across the bay. The letter dated December 6, 1955

⁹⁶ Contract Repairs, Moore Drydock Company, June 4, 1954. Year is not legible in document, but work is listed as completed on May 19, 1954. See HDC 648, Folder 4, Series 4, Harrison Dring Papers, *Eureka* Historical (1911-1985), SFMNH. P.

⁹⁷ Steamer *Eureka* Fuel Consumption Average, 9 November, 1954, Office of the Genl. Supt. of Motive Power, HDC 648, Folder 5 Series-4, Harrison Dring Papers, Repairs to Ferry Steamer *Eureka* 2/55 – 12/56, SFMNH. P.

⁹⁸ Authority for Expenditure, Southern Pacific Company, General Manager's No. 60695, Office of Genl. Supt. of Motive Power, Genl. Superintendent's M.P. No.35446. Install a Smoke-Density Indicator and Alarm to one of our ferry steamers. AA-2501 approved 27 January, 1955. HDC 648, Folder 5 Series-4, Harrison Dring Papers, Repairs to Ferry Steamer *Eureka* 2/55 – 12/56, SFMNH. P.

⁹⁹ Mailgram from B.M. Brown to R. Ersepke, 14 February, 1955. HDC 648, Folder 5 Series-4, Harrison Dring Papers, Repairs to Ferry Steamer *Eureka* 2/55 – 12/56, SFMNH. P.

¹⁰⁰ Memorandum, "Ferry Steamer *Eureka* – Generators," February 28, 1955, HDC 648, Folder 5, Series 4, Harrison Dring Papers, Repairs to Ferry Steamer *Eureka* 2/55 – 12/56, SFMNH. P.

¹⁰¹ Mailgram (Noted on bottom left hand corner), May 9, 1955, from B.M. Brown to R.E. Hallawell, "... regarding damage to the steamer *EUREKA* account of rough seas experienced on April 25:...", HDC 648, Folder 5 Series-4, Harrison Dring Papers, Repairs to Ferry Steamer *Eureka* 2/55 – 12/56, SFMNH. P.

indicates that by that time, *Eureka* did not have heaters for its fuel system.¹⁰² Instead, the crew would hook up the ship's fuel system to a separate system on the pier, which would heat the fuel and recirculate it back into *Eureka*'s fuel tanks between trips. On the occasion of the heavy smoke, something went wrong and the fuel was not heated. Cold fuel did not burn properly, causing heavy smoke. The letters make clear that there was an intent to install heaters on *Eureka* soon, which would cure the problem. This installation does not appear in available documentation but today, *Eureka* has heaters both in the fuel tank and by the pumps to heat the fuel just before it is sprayed into the boilers. The 1955 correspondence and the current machinery on the ship suggest that these heating systems may have been installed very near the end of the ship's operational life, perhaps sometime in 1956.

1957 In 1957, a broken crank pin forced Southern Pacific to remove *Eureka* from service. Tri-Coastal Marine's 1992 draft HSR states that the economics of the time, rather than mechanical breakdown, was probably the primary factor in Southern Pacific's decision to withdraw the vessel from service permanently.¹⁰³ This statement suggests that the opening of the Bay Bridge, Golden Gate Bridge, and other San Francisco Bay area bridges had so significantly reduced ferryboat traffic, it was no longer cost effective to return *Eureka* to service.

¹⁰² Letter from S. M. Houston to R. Ersepke, Nov. 29, 1955. , HDC 648, Folder 5 Series-4, Harrison Dring Papers, Repairs to Ferry Steamer *Eureka* 2/55 – 12/56, SFMNHP; Letter, Dec. 6, 1955, To: S.M. Houston, From: R. Ersepke, concerning heavy black smoke on ferry *Eureka*, HDC 648, Folder 5 Series-4, Harrison Dring Papers, Repairs to Ferry Steamer "*Eureka*" 2/55 – 12/56, SFMNHP.

¹⁰³ Tri-Coastal Marine, 16.

Additional Sources

Tri-Coastal Marine, Inc. *Ferryboat Eureka: Historic Structure Report 1992 Draft*. San Francisco, CA: Tri-Coastal Marine, Inc., 1992.

References of 1992 Draft Ferryboat *Eureka* Draft

The following pages reproduce the reference pages from the 1992 Historic Structures report draft by Tri-Coastal Marine. That reference list omits the following citation, which is used elsewhere in the report.

North, E.M. "*Evolution of Shipping and Shipbuilding in California – IV: The Work of Captain Patrick Henry Tiernan.*" *Overland Monthly* XXXIII – Second Series (January-June 1899): 143-153.

system of canvas deck covering was considered too labor-intensive to maintain, and was replicated using more durable materials. A layer of plywood was laid over the deck planking, then covered with polyester fabric (to duplicate the appearance of canvas) and coated with an isomeric roof coating. Deteriorated wood structure along the edges of the deck was replaced by Park shipwrights.

Installation of Bilge System: a bilge alarm and pumping system was installed in the vessel. The system consists of stripper pumps in all seven watertight hull compartments, and emergency bilge suction in the five major compartments. The historic "hot well" tank in the engine room was modified for use as a bilge water holding tank. This system is a nonhistoric addition.

Electrical System Documentation and Repairs: the active portions of the electrical system, much of which is historic wiring and fixtures, was documented, surveyed, and repaired (SFMNHP 1989).

□ Historical References

The major source of documentation of *Eureka's* physical history is to be found in the variety of materials at the Historic Documents Department of the San Francisco Maritime National Historical Park.

Historical documentation of *Ukiah*, during the years 1890 to 1920, is found primarily in newspaper articles and books. This period is fairly well documented; but there are only about a half dozen photographs of *Ukiah* from these years.

Documentation of the years 1920 to 1957 is somewhat scarce and consists mainly of photographs and oral histories. Several construction drawings exist for this period, most notably the general arrangement and mechanical drawings for the construction of *Eureka* in 1922-23. There are very few maintenance records available on the *Eureka* during her years of ownership by Southern Pacific Company. Mr. Bruce Herregis, a Southern Pacific official and amateur historian, confirmed (in a telephone interview, November 1989) that most of the Southern Pacific Company records were disposed of, or sent to the Huntington Library in San Marino, California.

Documentation for the years 1957 to the present consists mainly of maintenance records and other relevant material contained in a collection titled "*Eureka* Wheelhouse Records - H. J. Dring." Mr. Harrison Dring was Superintendent of Ships for the State Historic Park, and later the National Maritime Museum, from the mid-1950s to his retirement in 1982.

Department of Commerce and Labor. 1911. Certificate of Inspection from the Steamboat Inspection Service, dated 3 November. San Francisco.

Dring, Harrison. 1958-1976. "*Eureka* Wheelhouse Records - H.J. Dring", SAFR.

Source consists of Mr. Dring's maintenance logs, memoranda, contract documents, invoices, and correspondence. These records also include relevant items of a historical or technical nature which came to his attention. Most of the records are considered reliable due to Mr. Dring's expertise on maritime subjects.

Harlan, George. 28 August 1941. "The Saga of the Ferries." *Sausalito News*.

_____. 1951. *Of Walking Beams and Paddle Wheels*. Berkeley: Howell-North.

Considered very reliable due to Mr. Harlan's considerable knowledge and expertise of San Francisco Bay ferries.

Knorp, William. 7 December 1989. Interview with George Berry.

Mr. Knorp is a ferryboat enthusiast who began riding ferryboats in the 1930s. Many of his recollections are confirmed by photographic or other documentary evidence.

Linville, Richard. 21 November 1989. Interview with George Berry.

Mr. Linville is a retired shipwright who worked on *Eureka* while he was employed by Moore Drydock Company, the San Francisco Maritime State Historic Park, and the National Park Service. Many of Mr. Linville's recollections are confirmed by other interview data.

List of Merchant Vessels of the United States. Washington D.C.: U.S. Government Printing Office 1891.

List of Merchant Vessels of the United States, Washington D.C.: U.S. Government Printing Office 1922.

Miles, Ted. 1989. Recollections of a conversation with H.J. Dring.

National Park Service. 1984. Contract documents dated 22 August. Golden Gate National Recreation Area.
Considered reliable, although no Contract Completion Report was found to confirm work.

Oakes, Ron. 1989. Interview with Gene Barron.

Mr. Oakes has served as Shipwright Foreman at the Maritime Park since 1984. He has supervised most of the work performed on *Eureka* by Park personnel during this period.

Peninsula Times Tribune. 1 January 1985. Palo Alto.

Source is considered reliable.

Proctor, John. No date. "Wharf & Wave" Scrapbook Vol. 5.

Source is considered reliable, and consists of photographs and newspaper articles collected between 19?? and 19??.

Reals, Clifford and Miles, Royster. 17 November 1989. Interview with George Berry.

Mr. Reals and Mr. Miles worked on *Eureka* during the State Parks and National Park Service periods. Their accounts of work performed on the vessel are considered reliable, though the dates given are somewhat questionable.

Ross Valley Reporter. 3 May 1972. "The *Eureka* and her Skipper." Ross Valley, California.

San Francisco Examiner. 19 May 1890. "The *Ukiah*." San Francisco.

_____. 28 December 1890. "Trial Trip of the *Ukiah*." San Francisco.

_____. 17 April 1907. "Sleeping Men Rescued from Bunks." San Francisco.

The foregoing newspaper articles are considered reliable.

San Francisco Maritime State Historic Park. October 23, 1989. Pamphlet "*Eureka* Fact Sheet." San Francisco.

Source is considered reliable.

SF Maritime National Historical Park. 1958 to 1988. Reference document titled "*Eureka* Scrapbook." San Francisco.

Source contains photographs and newspaper articles pertaining to *Eureka* and is considered reliable.

San Francisco Progress. 9 January 1985. San Francisco.

Source is considered reliable.

U.S. Government Memorandum, Western Region Public Office press clipping, GGNRA.

Source is considered reliable.